

# **Developing a Strategic Plan for Alternative Fuel Use at General Mitchell Airport (Milwaukee, WI)**

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# Outline of Presentation

- Beginning phase
- Setting the stage
- Motivations and priorities
- Identifying program process
- Focus on strategy elements
- GMIA targets
- What's next?

# Inspiration/Beginnings

- Wisconsin Clean Cities identified General Mitchell International Airport (GMIA) as prime target for AFVs
- Initiated discussions with GMIA officials
- Actively participated in DOE/Clean Vehicle Education Foundation Airport Shuttle Outreach Program
- April 2002 meeting with GMIA on AFVs

***Consistent efforts to educate GMIA on  
the potential benefits of AFV use***

# Quick GMIA Background

- GMIA is county-run and has approximately 137 fleet vehicles either rented, leased or owned by GMIA
- GMIA is classified as a medium-size airport by the Federal Aviation Administration
- GMIA is located within the heart of the six-county severe ozone nonattainment area of Southeastern Wisconsin
- The airport serves over 5.5 million commercial passengers annually

# The Airport Shows Interest...

## Now What?

- Continue the education process
- Work with them on their issues
- Provide information and support
- Share other airport success stories
- Solicit partners to assist in process  
(OEMs, fuel providers)

***Ongoing education critical to project success***

# WCCSEA Tiger Team

## Request to NREL

- Technical assistance provided to WCCSEA
- Initiated after GMIA stated interest in moving forward with AFV use but leery of where to start
- WCCSEA needed outside “neutral” opinion to help assure GMIA of AFV program benefits
- First Tiger Team meeting in October 2002
- Final Tiger Team meeting June 2003

# Setting the Stage

- Identify project team - GMIA, Clean Cities, Edwards & Kelcey
- Review:
  - Airport and program objectives
  - Process
  - Opportunities and constraints
  - Roles and responsibilities
  - Local situation and issues

# Understanding Airport Motivations

## Position airport for future growth!

- Reduce emissions (airport expansion)
- Controlling costs
- Increasing fuel options
- Demonstrating community concern/PR
- Ongoing Master Planning efforts



# Airport Priorities and Focus

- Start small and build slowly
- Fully involve partners
- Early emphasis on infrastructure
- Evolution not revolution
- Only fully commercialized technologies
- Community awareness of activities

# Identifying Program Process

- Identify fleets and opportunities through survey
  - Airport fleet data collection
  - Airport survey
  - Procurement schedules and process
  - Who makes purchasing decisions
  - Contracts and agreements
- Assess the options
  - Benefits and costs of fleets and fuels
  - Emission reduction potential
  - Fuel usage
  - Number of vehicles
- Develop AFV strategy plan

# Focus on Strategy Elements

- Fleet Targets
- Infrastructure
- Funding
- Partners
- Maintenance
- Outreach
- Policy

# Initial AFV Recommendations

Category	Element	Fuel Option	Number of Vehicles	Alternative Fuel Usage	Total NOx Source (tpy)	Unit NOx Reduction	Total NOx Reduction (tpy)	Unit Incremental Cost	Total Incremental Cost
GMIA	Light Duty Fleet	CNG	42	18,700 gge CNG	19.68	80%	0.40	\$5,000	\$210,000
	Contracted Shuttles	CNG	10	50,600 gge CNG		80%	12.78	\$10,000	\$100,000
	Heavy Duty and Offroad	Biodiesel	40	12,500 gal biodiesel		0%	TBD	\$0.15/gal	\$1,875
Ground Service Equipment	Tugs, Belt Loaders, pushbacks, & Forklifts	Electric	80	1.6 MWh electricity	44.01	100%	27.66	\$15,000	\$1,200,000
	Fuel, Water, Service & Lav Trucks	CNG	68	149,600 gge CNG		80%	8.72	\$15,000	\$1,020,000
Ground Access Vehicles	Parking Shuttles	CNG	18	91,080 gge CNG	31.96	80%	25.57	\$10,000	\$180,000
	Hotel Shuttles	CNG	20	12,650 gge CNG	6.39	80%	5.11	\$10,000	\$200,000
	Taxis	CNG	56	123,200 gge CNG	3.78	80%	3.02	\$5,000	\$280,000
Construction & Offroad Equipment		Biodiesel	100	100,000 gal biodiesel	1.02	0%	TBD	\$0.15/ gal	\$15,000 annually
<b>TOTALS</b>			<b>434</b>	<b>1.6 MWh 100,000 biodiesel 445,830 CNG</b>	<b>106.84</b>		<b>83.26</b>		

\* CNG use accounts for 10% difference in efficiency

# Refine Airport Motivations

## Position Airport for Future Growth!

- Establish supporting infrastructure
- Obtain credit for AFV activities (registry)
- Demonstrate GMIA success, replicate in other airport fleets
- Focus on long term goals, not interim approaches

# Fuel Choice Decision: Natural Gas and Electricity

- Emission reduction potential
- Ease of implementation
- Active support of local utility
- Vehicle availability
- Controlled program costs
- Successful industry track record

# GMIA Strategic Plan

- Action-based
- Implementation strategies and schedule
- Partner responsibilities
- Policy recommendations
- Infrastructure development
- Emission reduction impacts
- Community outreach
- Funding activities
- Next steps – program expansion

# Prioritized Target Fleets

## First Tier Targets:

- GMIA light-duty fleet
- GMIA contracted shuttles

## Second Tier Targets:

- GSE – airline and FBO
- GSE – catering, fuel, lavatory and service trucks
- Private parking shuttles
- Hotel shuttles

## Other Targets

- GMIA heavy-duty and off-road
- Taxi fleets
- Construction equipment
- Cargo equipment and equipment



# Infrastructure Development

- Primary objective to establish CNG station at key onsite location by end of 2004
- Station accessible to GMIA, airport fleets, public
- Discussions underway with potential owner/operators
- CMAQ application applied for - with broad Congressional support
- Strong support from local utility
- Electric infrastructure development up to individual airlines/FBOs – future target focus

# What's Next?

- Integrate AFVs into Master Plan
- Emission credits
- Funding
- PR and marketing
- Education of and enlisting other partners in program
- Policy development